

Figure 1. An entity-relationship view of the sale and purchase events (under REA)

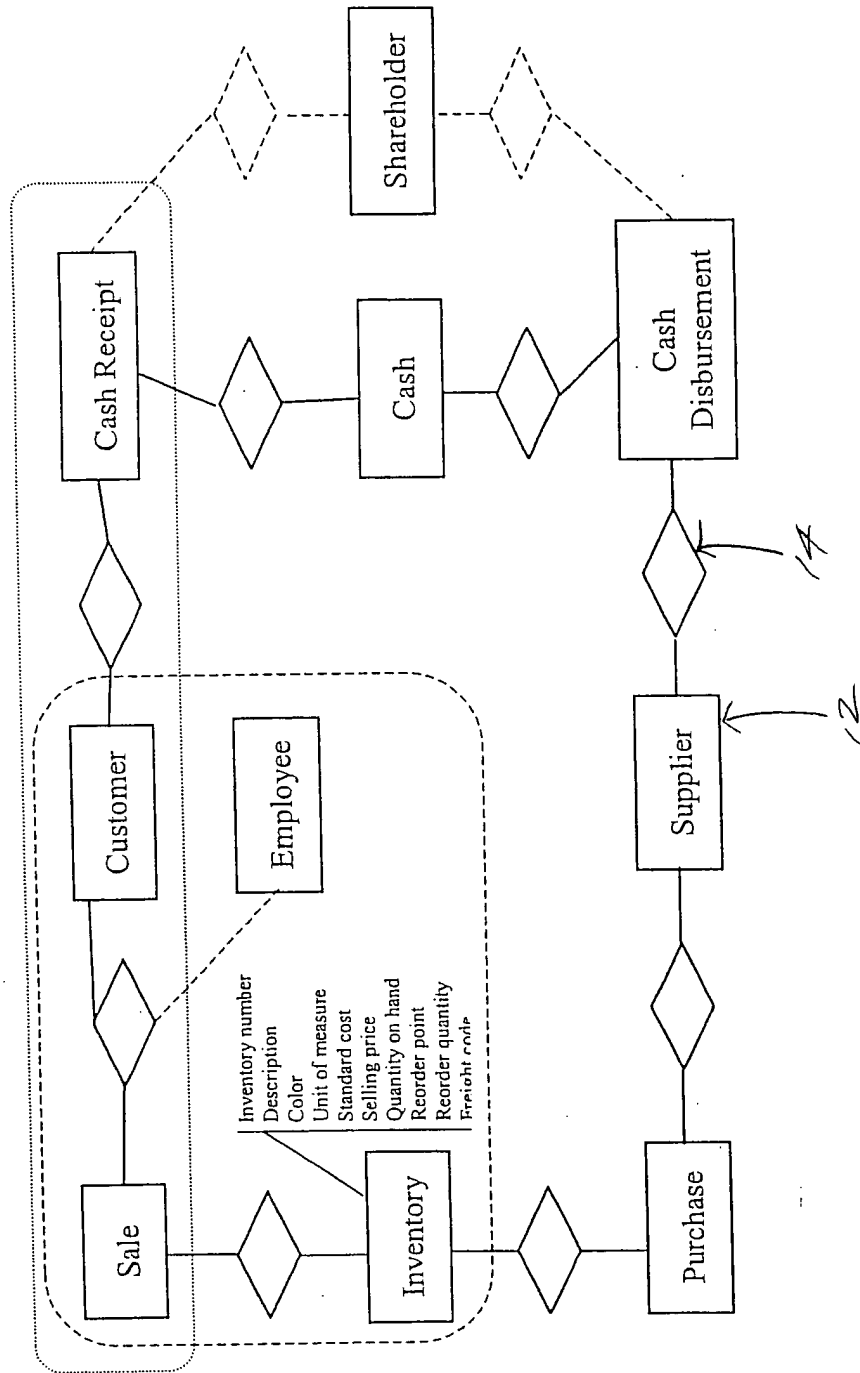


Figure 2. Proliferation of tables under entity-relationship model

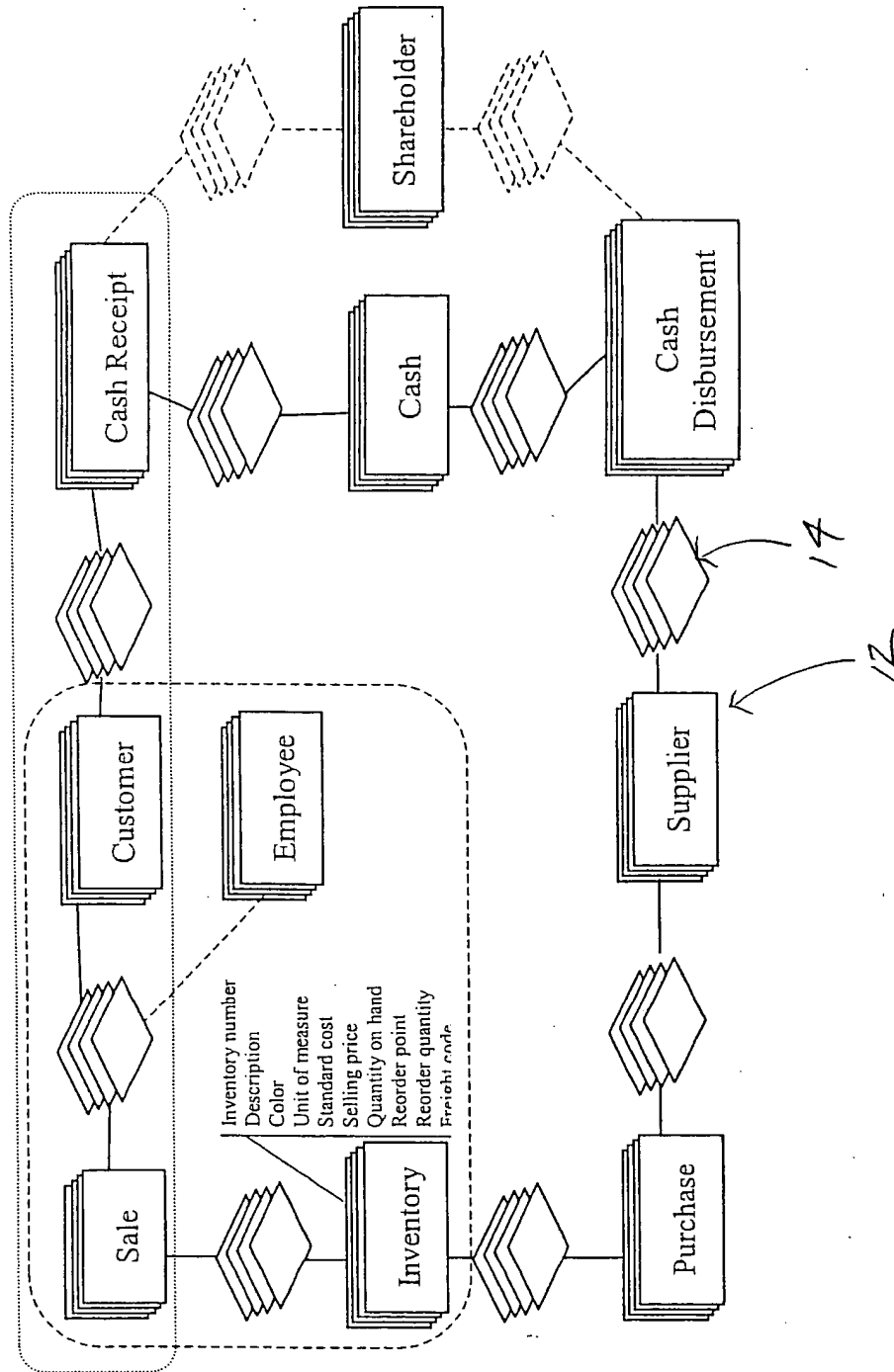


Figure 3. Representation of one database table or array

Table (array) name
Attribute, column, or field name (1)
Attribute, column, or field name (2)
Attribute, column, or field name (3)
Attribute, column, or field name (4)

12

✓ 16

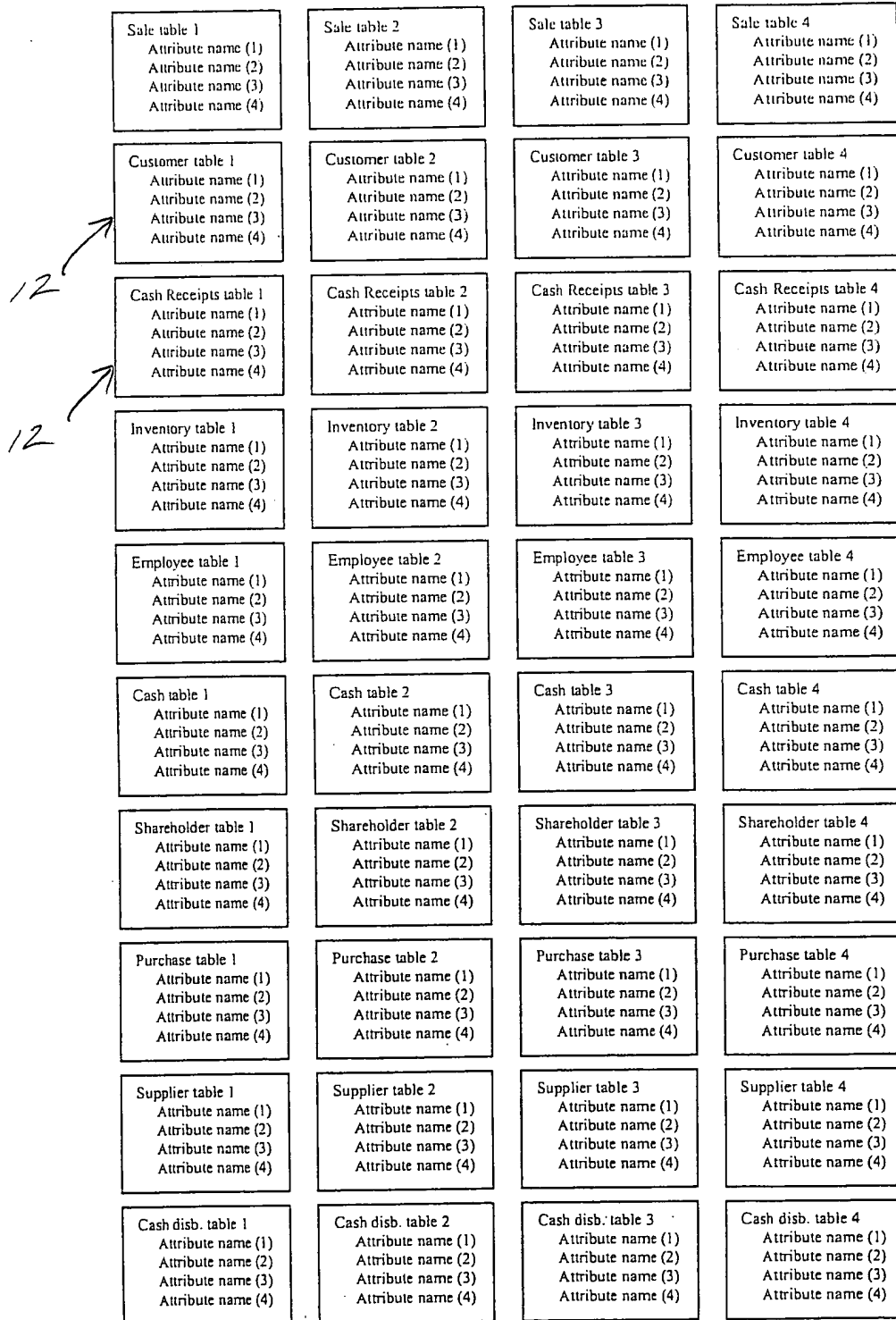


Figure 5. Thumbnail comparison of Figure 4 compared with ERP-oriented enterprise databases

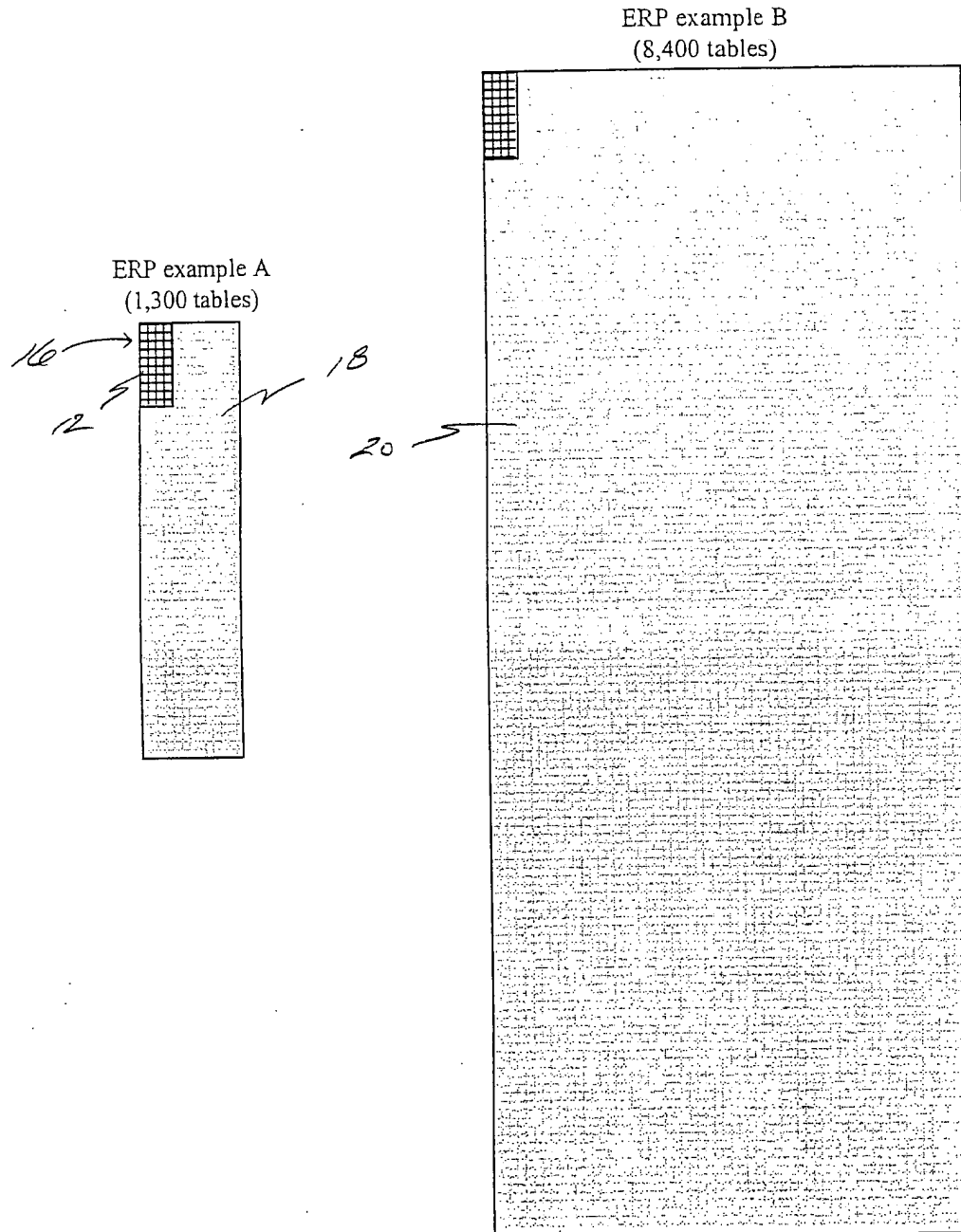
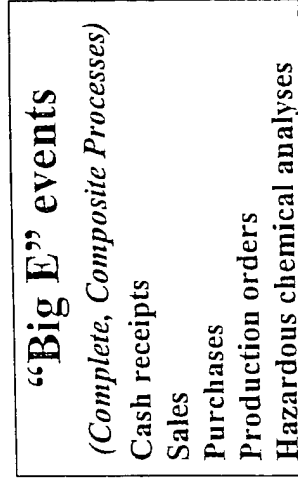
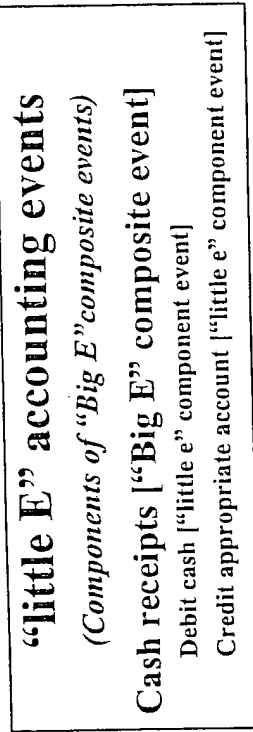


Figure 6. "Big E" events



22

Figure 7. "little e" accounting events



← 24

Figure 8. “little e” retail sale component events

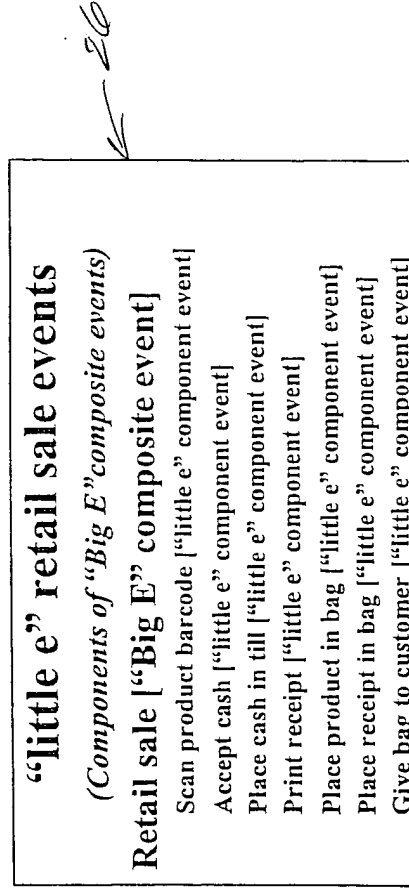
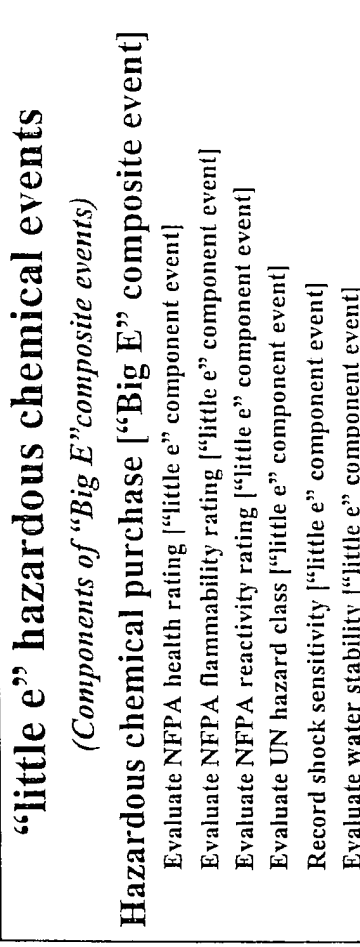


Figure 9. “Big E” “little e” breakdown of hazardous chemical analysis event



← 28

Figure 10. Basic REA structure

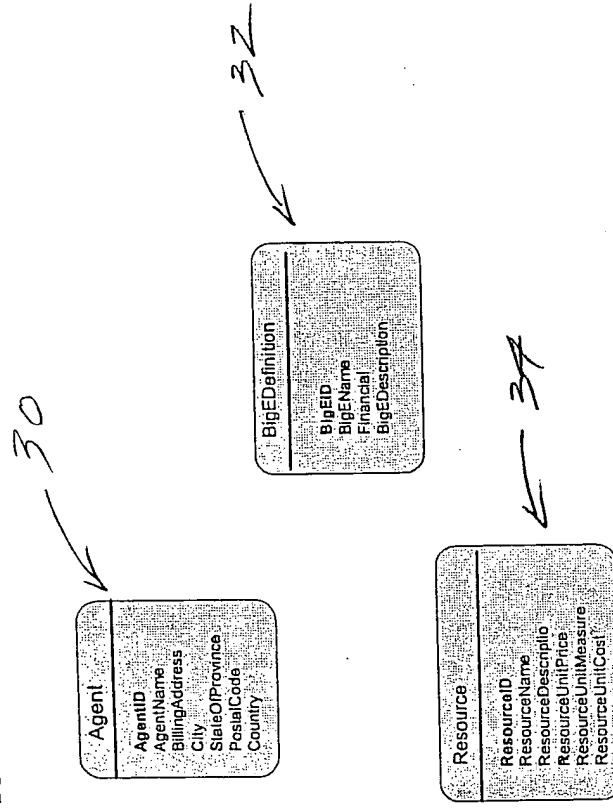


Figure 11. Expansion of events to include details

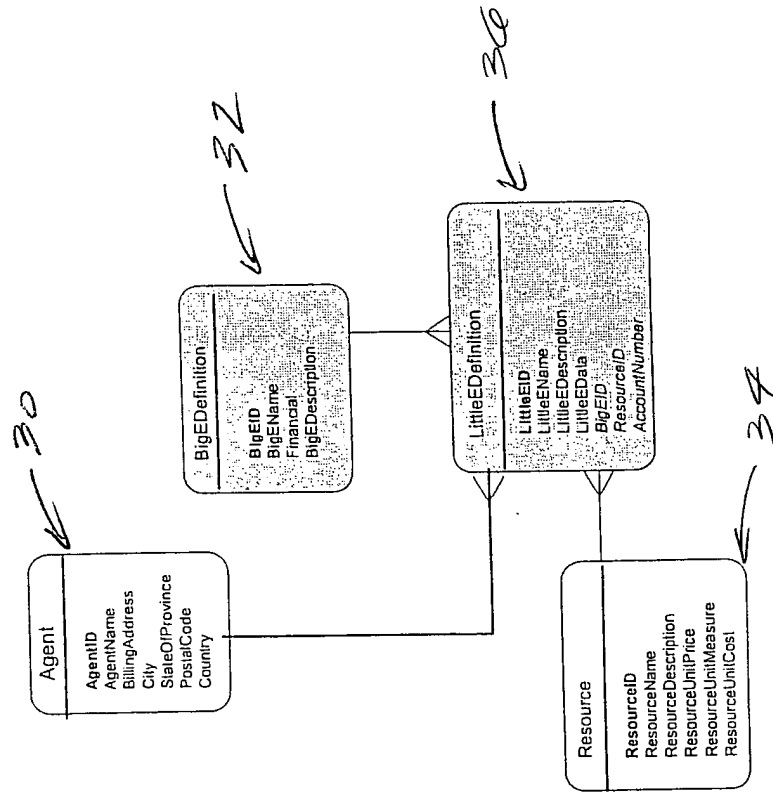


Figure 12. Event transaction tables created from event definition tables

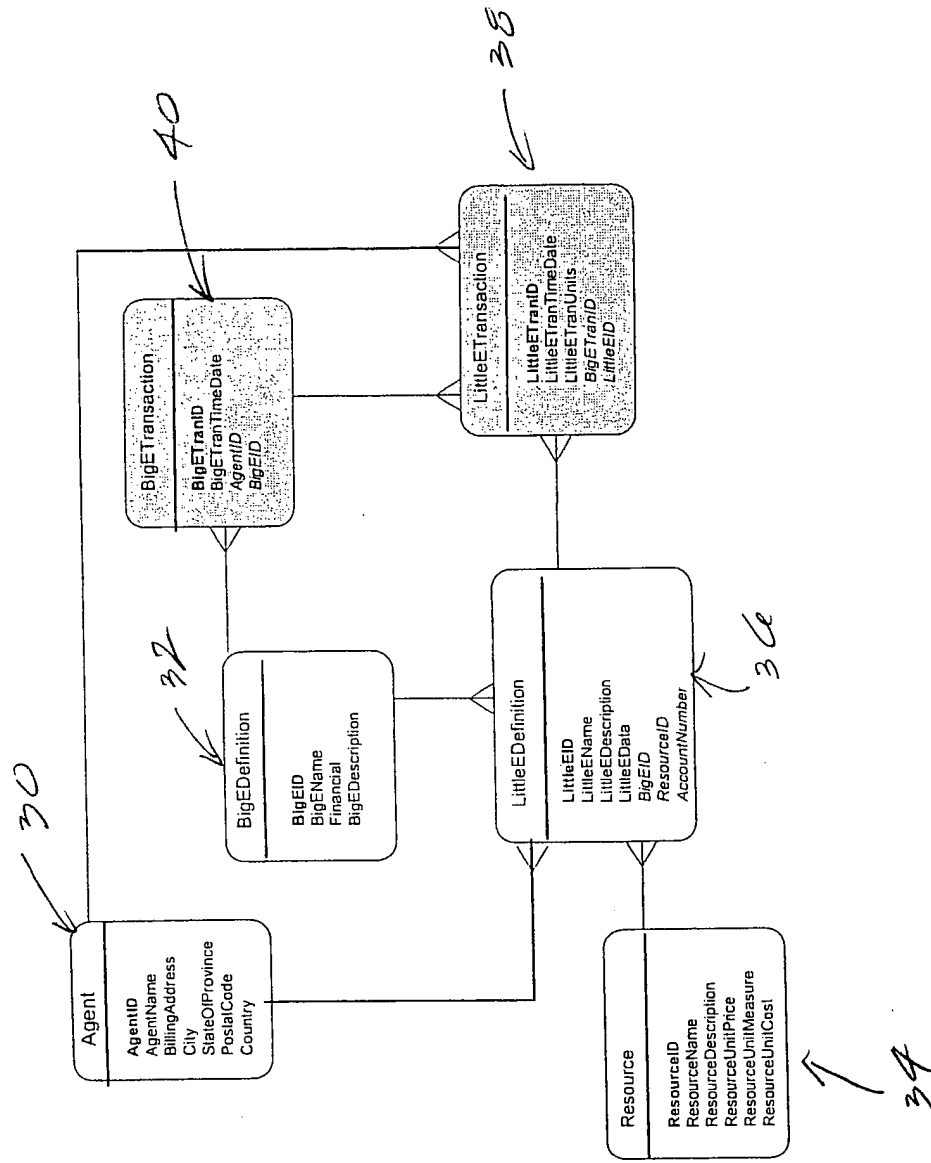


Figure 13. Support for traditional accounting model.

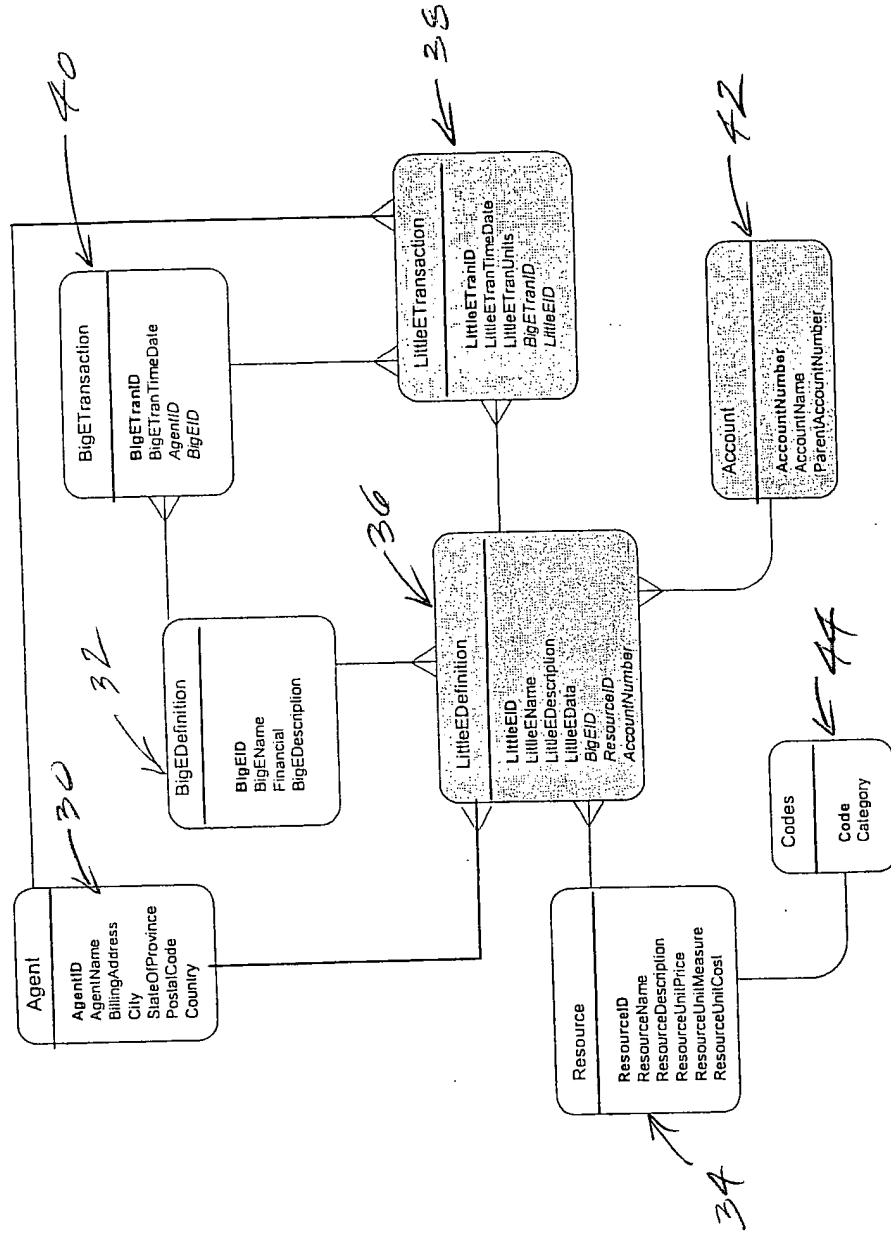


Figure 14. Events transactions rich store of enterprise data.

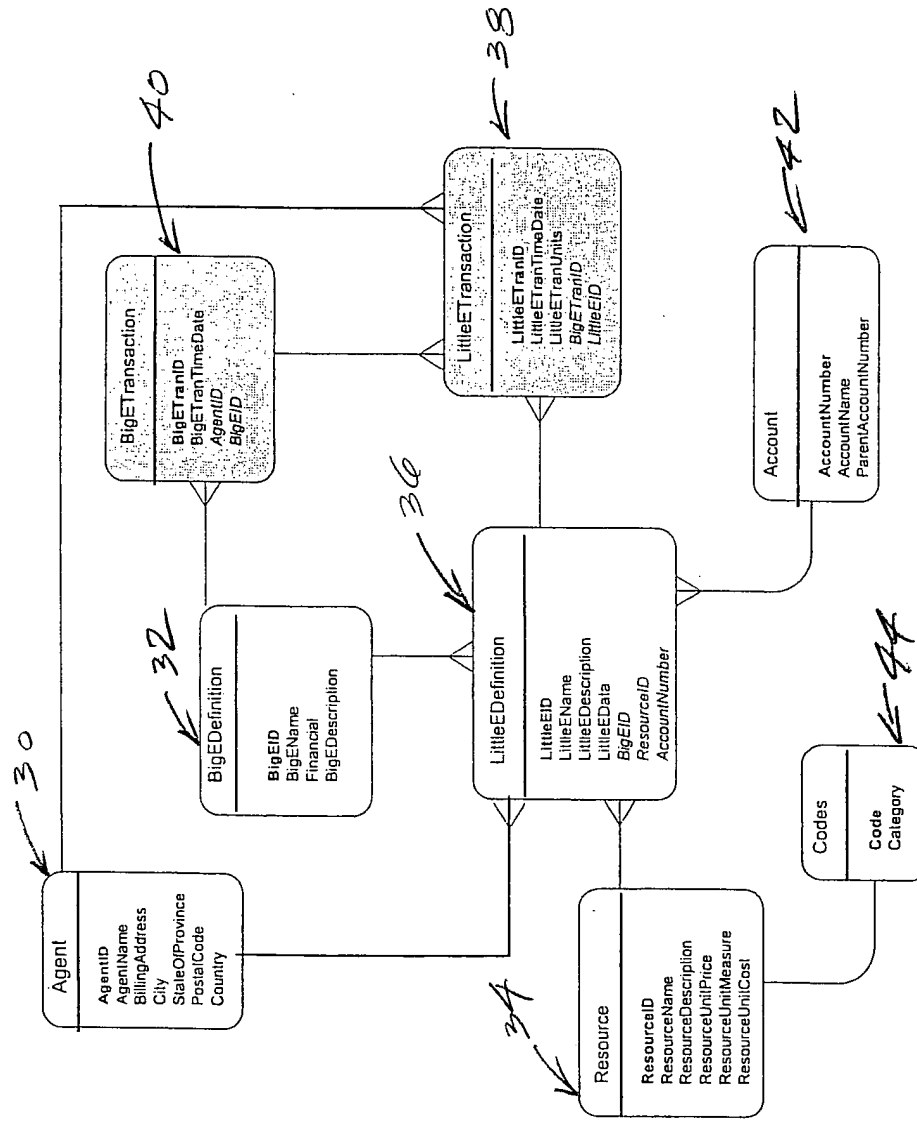


Figure 15. BigEDefinition table

BigEID	BigEName	Financial	BigEDescription
26	PurchCash	<input checked="" type="checkbox"/>	Cash purchase
27	HazChemPurch	<input type="checkbox"/>	Purchase of hazardous chemical
28	SaleCash	<input checked="" type="checkbox"/>	Cash Sale

↑
32

Figure 16. LittleEDefinition table

LittleEID	LittleEName	BigEID	LittleEDescription	AccountNumber	LittleData	ResourceID
45	drInv	26	Debit Inventory	101-300		1
46	crCash	26	Credit Cash	101-100		
47	NFPAHealth	27	NFPA Health Rating		1	1
48	NFPAFlam	27	NFPA Flammability Rating		3	1
49	NFPAREat	27	NFPA Reactivity Rating		2	1
50	UNHazClass	27	UN Hazard Class		43	1
51	ShockSense	27	Shock Sensitive		1	1
52	WaterStable	27	Stable in water			1
53	WaterUnstable	27	Unstable in water			1
54	drCash	28	Debit Cash	101-100		
55	crRev	28	Credit Revenue	200-100		1

↙ 36

Figure 17. Resource table

ResourceID	ResourceName	ResourceDescription	ResourceUnitPrice	ResourceUnitMeasure	ResourceUnitCost
1	Acetylenogen	Calcium carbide -- 100	\$23.00	Unit	\$15.00

Figure 18. Combined BigEDefinition/LittleEDefinition report

BigEID	LittleEID	BigEName	BigEDescription	LittleEName	LittleEDescription
26		PurchCash	Cash purchase		
26	45			drInv	Debit Inventory
26	46			crCash	Credit Cash
27		HazChemPurch	Purchase of hazardous chemical		
27	47			NFPAHealth	NFPA Health Rating
27	48			NFPAFlam	NFPA Flammability Rating
27	49			NFPARcat	NFPA Reactivity Rating
27	50			UNHazClass	UN Hazard Class
27	51			ShockSense	Shock Sensitive
27	52			WaterStable	Stable in water
27	53			WaterUnstable	Unstable in water
28		SaleCash	Cash Sale		
28	54			drCash	Debit Cash
28	55			crRev	Credit Revenue

Figure 19. BigETransaction table

BigETranID	BigEID	AgentID	BigETranTimeDate
132	26	1	2/15/2002 2:05:15 PM
133	27	1	2/15/2002 2:05:15 PM
134	28	1	2/15/2002 2:05:15 PM

Figure 20. LittleETransaction table

LittleETranID	LittleEID	BigETranID	LittleETranTimeDate	LittleETranUnits
1161	45	132	2/15/2002 2:05:15 PM	15
1162	46	132	2/15/2002 2:05:15 PM	15
1163	47	133	2/15/2002 2:05:15 PM	15
1164	48	133	2/15/2002 2:05:15 PM	15
1165	49	133	2/15/2002 2:05:15 PM	15
1166	50	133	2/15/2002 2:05:15 PM	15
1167	51	133	2/15/2002 2:05:15 PM	15
1168	52	133	2/15/2002 2:05:15 PM	15
1169	53	133	2/15/2002 2:05:15 PM	15
1170	54	134	2/15/2002 2:05:15 PM	8
1171	55	134	2/15/2002 2:05:15 PM	8

Figure 21. Query to create "Big E" event transaction record from event definition table.

```
INSERT INTO BigETransaction ( BigEID, AgentID, BigETranTimeDate )  
SELECT BigEDefinition.BigEID, 1, '2002-02-15 14:05:15'  
FROM BigEDefinition  
WHERE BigEDefinition.BigEID=26;
```

✓ 48

Figure 22. Query to create "little e" event transaction records from event definition table.

```
INSERT INTO LittleETransaction ( LittleEID, BigETranID,  
LittleETranTimeDate, LittleETranUnits )  
SELECT LittleEDefinition.LittleEID, BigETranID, '2002-02-15 14:05:15',  
LittleETranUnits  
FROM LittleEDefinition  
WHERE LittleEDefinition.BigEID=26;
```

✓ 50

Figure 23. Inventory ledger materialization from component "little e" tables

LittleETransaction Table					
LittleETransID	LittleEID	BigETransID	LittleETransTimeDate	LittleETransUnits	
1161	45	132	2/15/2002 2:05:15 PM	15	
1162	46	132	2/15/2002 2:05:15 PM	15	
1163	47	133	2/15/2002 2:05:15 PM	15	
1164	48	133	2/15/2002 2:05:15 PM	15	
1165	49	133	2/15/2002 2:05:15 PM	15	
1166	50	133	2/15/2002 2:05:15 PM	15	
1167	51	133	2/15/2002 2:05:15 PM	15	
1168	52	133	2/15/2002 2:05:15 PM	15	
1169	53	133	2/15/2002 2:05:15 PM	15	
1170	54	134	2/15/2002 2:05:15 PM	8	
1171	55	134	2/15/2002 2:05:15 PM	8	

Inventory ledger account 101-300
15 units x \$15 cost = \$225 inventory cost

Resource Table					
ResourceID	ResourceName	ResourceDescription	ResourceUnitPrice	ResourceUnitMeasure	ResourceUnitCost
1	Acetylenogen	Calcium carbide -- 100	\$23.00	Unit	\$15.00

LittleEDefinition Table					
LittleEID	LittleEName	BigEID	LittleEDescription	AccountNumber	ResourceID
45	drInv	26	Debit Inventory	101-300	1
46	crCash	26	Credit Cash	101-100	1
47	NFPAHealth	27	NFPA Health Rating	1	1
48	NFPAFlam	27	NFPA Flammability Rating	3	1
49	NFPAReal	27	NFPA Reactivity Rating	2	1
50	UNHazClass	27	UN Hazard Class	4.3	1
51	ShockSense	27	Shock Sensitive	1	1
52	WaterStable	27	Stable in water	1	1
53	WaterUnstable	27	Unstable in water	1	1
54	drCash	28	Debit Cash	101-100	1
55	crRev	28	Credit Revenue	200-100	1

Figure 24. Cash ledger materialization from component "little e" tables

LittleETransaction Table					
LittleETransID	LittleEID	BigETransID	LittleETransTimeDate	LittleETransUnits	
1161	45	132	2/15/2002 2:05:15 PM	15	
1162	46	132	2/15/2002 2:05:15 PM	15	
1163	47	133	2/15/2002 2:05:15 PM	15	
1164	48	133	2/15/2002 2:05:15 PM	15	
1165	49	133	2/15/2002 2:05:15 PM	15	
1166	50	133	2/15/2002 2:05:15 PM	15	
1167	51	133	2/15/2002 2:05:15 PM	15	
1168	52	133	2/15/2002 2:05:15 PM	15	
1169	53	133	2/15/2002 2:05:15 PM	15	
1170	54	134	2/15/2002 2:05:15 PM	8	
1171	55	134	2/15/2002 2:05:15 PM	8	

Cash account 101-100
8 units x \$23 cost = \$184 cash debit

Resource Table					
ResourceID	ResourceName	ResourceDescription	ResourceUnitPrice	ResourceUnitMeasure	ResourceUnitCost
1	Acetylenogen	Calcium carbide -- 100	\$23.00	Unit	\$15.00

LittleEDefinition Table					
LittleEID	LittleEName	BigEID	LittleEDescription	AccountNumber	ResourceID
45	drInv	26	Debit Inventory	101-300	1
46	crCash	26	Credit Cash	101-100	1
47	NFPAHealth	27	NFPA Health Rating	1	1
48	NFPAFlam	27	NFPA Flammability Rating	3	1
49	NFPARear	27	NFPA Reactivity Rating	2	1
50	UNHazClass	27	UN Hazard Class	4.3	1
51	ShockSense	27	Shock Sensitive	1	1
52	WaterStable	27	Stable in water	1	1
53	WaterUnstable	27	Unstable in water	1	1
54	drCash	28	Debit Cash	101-100	1
55	crRev	28	Credit Revenue	200-100	1

36

Figure 25. Big E, little e definition tables

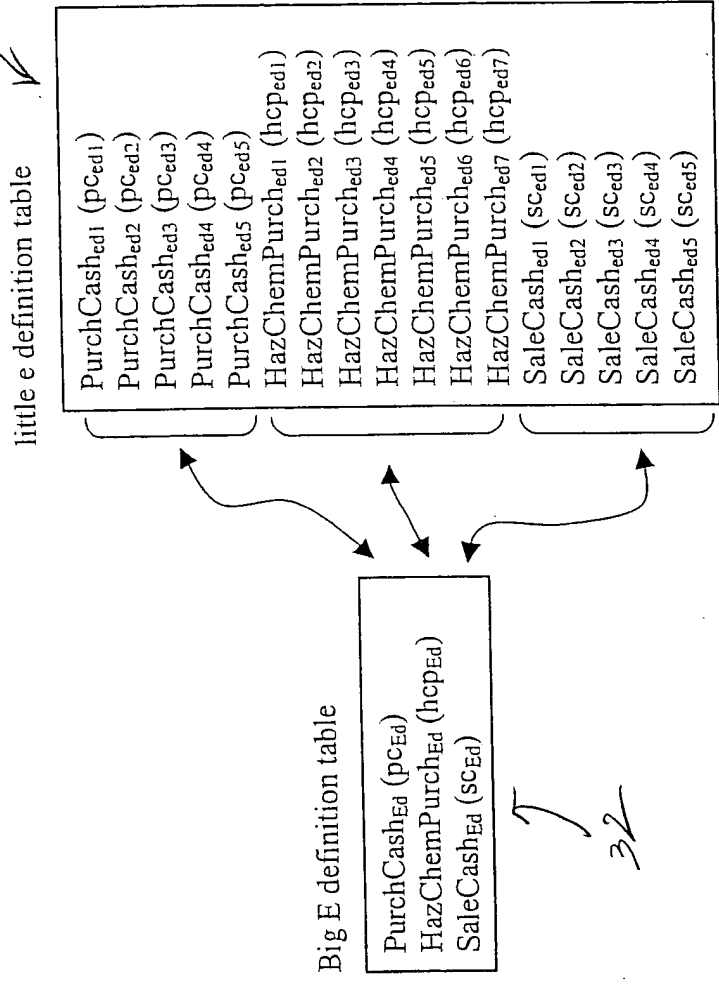


Figure 26. Big E, little e transaction table

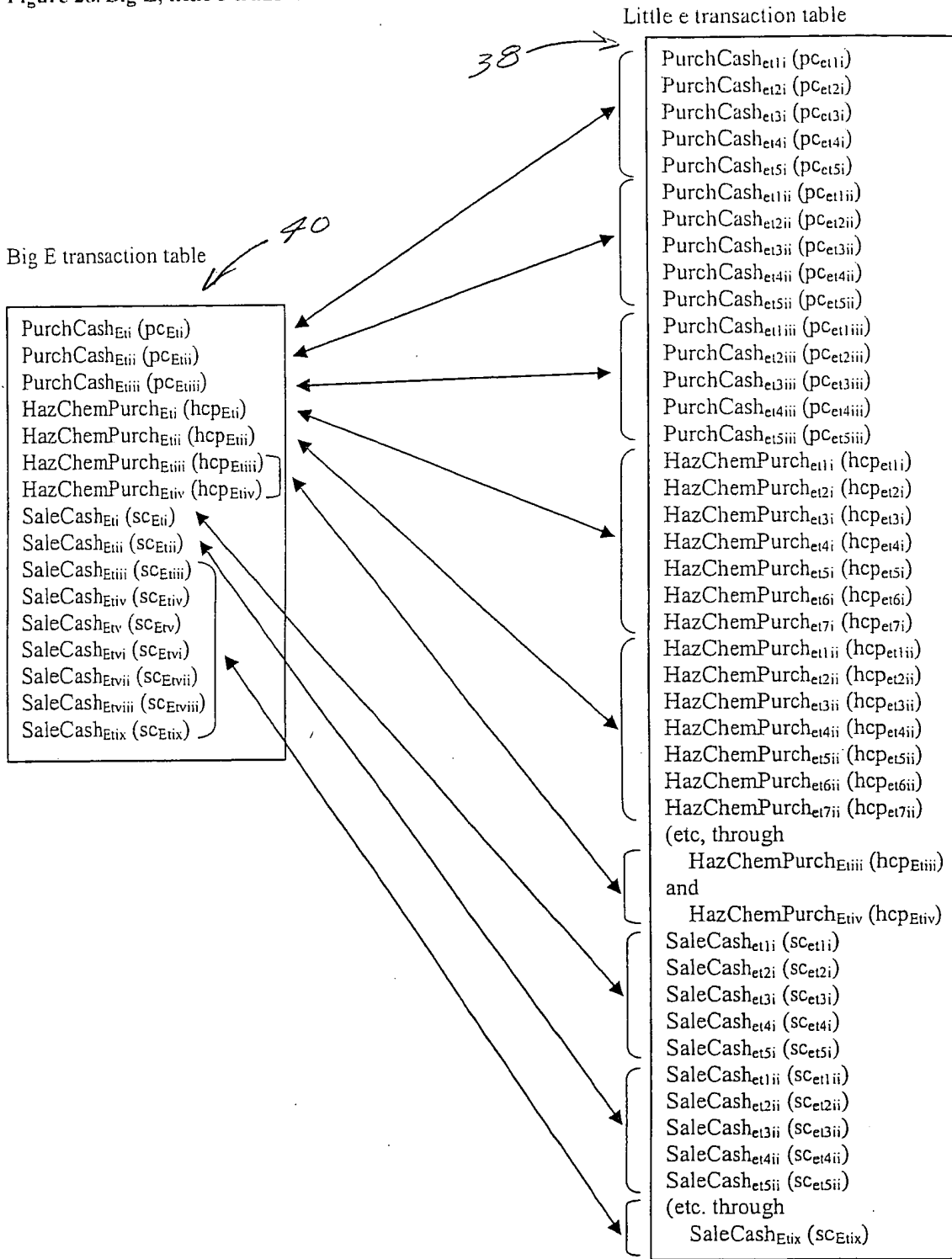


Figure 27. Combined big E, little e definition table

Both Big E and little e PurchCash events are listed	Big E/little e definition table	
	{	PurchCash _{Ed} (pC _{Ed})
		PurchCash _{ed1} (pC _{ed1})
		PurchCash _{ed2} (pC _{ed2})
		PurchCash _{ed3} (pC _{ed3})
		PurchCash _{ed4} (pC _{ed4})
Both Big E and little e HazChemPurch events are listed	{	PurchCash _{ed5} (pC _{ed5})
		HazChemPurch _{Ed} (hC _P Ed)
		HazChemPurch _{ed1} (hC _P ed1)
		HazChemPurch _{ed2} (hC _P ed2)
		HazChemPurch _{ed3} (hC _P ed3)
		HazChemPurch _{ed4} (hC _P ed4)
		HazChemPurch _{ed5} (hC _P ed5)
		HazChemPurch _{ed6} (hC _P ed6)
		HazChemPurch _{ed7} (hC _P ed7)
		SaleCash _{Ed} (sC _{Ed})
Both Big E and little e SaleCash events are listed	{	SaleCash _{ed1} (sC _{ed1})
		SaleCash _{ed2} (sC _{ed2})
		SaleCash _{ed3} (sC _{ed3})
		SaleCash _{ed4} (sC _{ed4})
		SaleCash _{ed5} (sC _{ed5})

52

Figure 28. Combined Big E, little e transaction table

PurchCash _{Eti} (pC _{Eti})	(continued from prior column)
PurchCash _{et1i} (pC _{et1i})	HazChemPurch _{Eiii} (hcp _{Eiii})
PurchCash _{et2i} (pC _{et2i})	(etc. from hcp _{et1iii} to hcp _{et7iii})
PurchCash _{et3i} (pC _{et3i})	HazChemPurch _{Eiv} (hcp _{Eiv})
PurchCash _{et4i} (pC _{et4i})	(etc. from hcp _{et1iv} to hcp _{et7iv})
PurchCash _{et5i} (pC _{et5i})	SaleCash _{Eti} (sC _{Eti})
PurchCash _{Eiii} (pC _{Eiii})	SaleCash _{et1i} (sC _{et1i})
PurchCash _{et1ii} (pC _{et1ii})	SaleCash _{et2i} (sC _{et2i})
PurchCash _{et2ii} (pC _{et2ii})	SaleCash _{et3i} (sC _{et3i})
PurchCash _{et3ii} (pC _{et3ii})	SaleCash _{et4i} (sC _{et4i})
PurchCash _{et4ii} (pC _{et4ii})	SaleCash _{et5i} (sC _{et5i})
PurchCash _{et5ii} (pC _{et5ii})	SaleCash _{Eiii} (sC _{Eiii})
PurchCash _{Eiii} (pC _{Eiii})	SaleCash _{et1ii} (sC _{et1ii})
PurchCash _{et1iii} (pC _{et1iii})	SaleCash _{et2ii} (sC _{et2ii})
PurchCash _{et2iii} (pC _{et2iii})	SaleCash _{et3ii} (sC _{et3ii})
PurchCash _{et3iii} (pC _{et3iii})	SaleCash _{et4ii} (sC _{et4ii})
PurchCash _{et4iii} (pC _{et4iii})	SaleCash _{et5ii} (sC _{et5ii})
PurchCash _{et5iii} (pC _{et5iii})	SaleCash _{Eiii} (sC _{Eiii})
HazChemPurch _{Eii} (hcp _{Eii})	(etc. from sC _{et1iii} to sC _{et5iii})
HazChemPurch _{et1i} (hcp _{et1i})	SaleCash _{Eiv} (sC _{Eiv})
HazChemPurch _{et2i} (hcp _{et2i})	(etc. from sC _{et1iv} to sC _{et5iv})
HazChemPurch _{et3i} (hcp _{et3i})	SaleCash _{Eiv} (sC _{Eiv})
HazChemPurch _{et4i} (hcp _{et4i})	(etc. from sC _{et1v} to sC _{et5v})
HazChemPurch _{et5i} (hcp _{et5i})	SaleCash _{Evi} (sC _{Evi})
HazChemPurch _{et6i} (hcp _{et6i})	(etc. from sC _{et1vi} to sC _{et5vi})
HazChemPurch _{et7i} (hcp _{et7i})	SaleCash _{Evi} (sC _{Evi})
HazChemPurch _{Eiii} (hcp _{Eiii})	(etc. from sC _{et1vii} to sC _{et5vii})
HazChemPurch _{et1ii} (hcp _{et1ii})	SaleCash _{Evi} (sC _{Evi})
HazChemPurch _{et2ii} (hcp _{et2ii})	(etc. from sC _{et1viii} to sC _{et5viii})
HazChemPurch _{et3ii} (hcp _{et3ii})	SaleCash _{Eix} (sC _{Eix})
HazChemPurch _{et4ii} (hcp _{et4ii})	(etc. from sC _{et1ix} to sC _{et5ix})
HazChemPurch _{et5ii} (hcp _{et5ii})	(etc.)
HazChemPurch _{et6ii} (hcp _{et6ii})	
HazChemPurch _{et7ii} (hcp _{et7ii})	
(continued next column)	

54

Figure 29. Combined Big E, little e definition and transaction table

Big E Definition	<div>PurchCash_{Ed} (pc_{Ed})</div> <div>HazChemPurch_{Ed} (hcp_{Ed})</div> <div>SaleCash_{Ed} (sc_{Ed})</div>	(continued from prior column)
	<div>PurchCash_{ed1} (pc_{ed1})</div> <div>PurchCash_{ed2} (pc_{ed2})</div> <div>PurchCash_{ed3} (pc_{ed3})</div> <div>PurchCash_{ed4} (pc_{ed4})</div> <div>PurchCash_{ed5} (pc_{ed5})</div> <div>HazChemPurch_{ed1} (hcp_{ed1})</div> <div>HazChemPurch_{ed2} (hcp_{ed2})</div> <div>HazChemPurch_{ed3} (hcp_{ed3})</div> <div>HazChemPurch_{ed4} (hcp_{ed4})</div> <div>HazChemPurch_{ed5} (hcp_{ed5})</div> <div>HazChemPurch_{ed6} (hcp_{ed6})</div> <div>HazChemPurch_{ed7} (hcp_{ed7})</div> <div>SaleCash_{ed1} (sc_{ed1})</div> <div>SaleCash_{ed2} (sc_{ed2})</div> <div>SaleCash_{ed3} (sc_{ed3})</div> <div>SaleCash_{ed4} (sc_{ed4})</div> <div>SaleCash_{ed5} (sc_{ed5})</div>	<div>HazChemPurch_{et5i} (hcp_{et5i})</div> <div>HazChemPurch_{et6i} (hcp_{et6i})</div> <div>HazChemPurch_{et7i} (hcp_{et7i})</div> <div>HazChemPurch_{Etii} (hcp_{Etii})</div> <div>HazChemPurch_{et1ii} (hcp_{et1ii})</div> <div>HazChemPurch_{et2ii} (hcp_{et2ii})</div> <div>HazChemPurch_{et3ii} (hcp_{et3ii})</div> <div>HazChemPurch_{et4ii} (hcp_{et4ii})</div> <div>HazChemPurch_{et5ii} (hcp_{et5ii})</div> <div>HazChemPurch_{et6ii} (hcp_{et6ii})</div> <div>HazChemPurch_{et7ii} (hcp_{et7ii})</div> <div>HazChemPurch_{Etiii} (hcp_{Etiii})</div> <div>(etc. from hcp_{et1iii} to hcp_{et7iii})</div> <div>HazChemPurch_{Etiv} (hcp_{Etiv})</div> <div>(etc. from hcp_{et1iv} to hcp_{et7iv})</div>
little e definition	<div>PurchCash_{Eti} (pc_{Eti})</div> <div>PurchCash_{et1i} (pc_{et1i})</div> <div>PurchCash_{et2i} (pc_{et2i})</div> <div>PurchCash_{et3i} (pc_{et3i})</div> <div>PurchCash_{et4i} (pc_{et4i})</div> <div>PurchCash_{et5i} (pc_{et5i})</div> <div>PurchCash_{Etii} (pc_{Etii})</div> <div>PurchCash_{et1ii} (pc_{et1ii})</div> <div>PurchCash_{et2ii} (pc_{et2ii})</div> <div>PurchCash_{et3ii} (pc_{et3ii})</div> <div>PurchCash_{et4ii} (pc_{et4ii})</div> <div>PurchCash_{et5ii} (pc_{et5ii})</div> <div>PurchCash_{Etiii} (pc_{Etiii})</div> <div>PurchCash_{et1iii} (pc_{et1iii})</div> <div>PurchCash_{et2iii} (pc_{et2iii})</div> <div>PurchCash_{et3iii} (pc_{et3iii})</div> <div>PurchCash_{et4iii} (pc_{et4iii})</div> <div>PurchCash_{et5iii} (pc_{et5iii})</div> <div>HazChemPurch_{Eti} (hcp_{Eti})</div> <div>HazChemPurch_{et1i} (hcp_{et1i})</div> <div>HazChemPurch_{et2i} (hcp_{et2i})</div> <div>HazChemPurch_{et3i} (hcp_{et3i})</div> <div>HazChemPurch_{et4i} (hcp_{et4i})</div> <div>(continued next column)</div>	<div>SaleCash_{Eti} (sc_{Eti})</div> <div>SaleCash_{et1i} (sc_{et1i})</div> <div>SaleCash_{et2i} (sc_{et2i})</div> <div>SaleCash_{et3i} (sc_{et3i})</div> <div>SaleCash_{et4i} (sc_{et4i})</div> <div>SaleCash_{et5i} (sc_{et5i})</div> <div>SaleCash_{Etii} (sc_{Etii})</div> <div>SaleCash_{et1ii} (sc_{et1ii})</div> <div>SaleCash_{et2ii} (sc_{et2ii})</div> <div>SaleCash_{et3ii} (sc_{et3ii})</div> <div>SaleCash_{et4ii} (sc_{et4ii})</div> <div>SaleCash_{et5ii} (sc_{et5ii})</div> <div>SaleCash_{Etiii} (sc_{Etiii})</div> <div>(etc. from sc_{et1iii} to sc_{et5iii})</div> <div>SaleCash_{Etiv} (sc_{Etiv})</div> <div>(etc. from sc_{et1iv} to sc_{et5iv})</div> <div>SaleCash_{Etv} (sc_{Etv})</div> <div>(etc. from sc_{et1v} to sc_{et5v})</div> <div>SaleCash_{Etvi} (sc_{Etvi})</div> <div>(etc. from sc_{et1vi} to sc_{et5vi})</div> <div>SaleCash_{Etvii} (sc_{Etvii})</div> <div>(etc. from sc_{et1vii} to sc_{et5vii})</div> <div>SaleCash_{Etviii} (sc_{Etviii})</div> <div>(etc. from sc_{et1viii} to sc_{et5viii})</div> <div>SaleCash_{Etix} (sc_{Etix})</div> <div>(etc. from sc_{et1ix} to sc_{et5ix})</div> <div>(etc.)</div>
... from here on, big E, little e transaction records		

Figure 30. Randomized Big E, little e transaction table

Big E transaction events more-or-less before little e transaction events

little e transaction events in randomized sequence (with some Big E transaction events mixed in

HazChemPurch_{Eii} (hcp_{Eii})
PurchCash_{Eiii} (pc_{Eiii})
SaleCash_{Eiii} (sc_{Eiii})
PurchCash_{Eii} (pc_{Eii})
PurchCash_{Eii} (pc_{Eii})
HazChemPurch_{et6i} (hcp_{et6i})
SaleCash_{et4ii} (sc_{et4ii})
HazChemPurch_{Eiii} (hcp_{Eiii})
PurchCash_{et3ii} (pc_{et3ii})
HazChemPurch_{Eiv} (hcp_{Eiv})
PurchCash_{et5i} (pc_{et5i})
SaleCash_{Eii} (sc_{Eii})
PurchCash_{et4iii} (pc_{et4iii})
SaleCash_{Eiv} (sc_{Eiv})
PurchCash_{et3iii} (pc_{et3iii})
HazChemPurch_{et3i} (hcp_{et3i})
SaleCash_{Eiv} (sc_{Eiv})
SaleCash_{et4i} (sc_{et4i})
HazChemPurch_{et1i} (hcp_{et1i})
SaleCash_{Eivii} (sc_{Eivii})
SaleCash_{et5i} (sc_{et5i})
SaleCash_{Evi} (sc_{Evi})
PurchCash_{et1i} (pc_{et1i})
HazChemPurch_{et2ii} (hcp_{et2ii})
PurchCash_{et2i} (pc_{et2i})
PurchCash_{et3i} (pc_{et3i})
SaleCash_{et1i} (sc_{et1i})
HazChemPurch_{et3ii} (hcp_{et3ii})
PurchCash_{et1ii} (pc_{et1ii})
HazChemPurch_{et7ii} (hcp_{et7ii})
SaleCash_{Elix} (sc_{Elix})
PurchCash_{et4ii} (pc_{et4ii})
PurchCash_{et5ii} (pc_{et5ii})
HazChemPurch_{et6ii} (hcp_{et6ii})
HazChemPurch_{et4ii} (hcp_{et4ii})
PurchCash_{et1iii} (pc_{et1iii})
HazChemPurch_{et5ii} (hcp_{et5ii})
SaleCash_{Eiviii} (sc_{Eiviii})
PurchCash_{et2ii} (pc_{et2ii})
(continued next column)

← 58 →

(continued from prior column)
PurchCash_{et4i} (pc_{et4i})
SaleCash_{et1ii} (sc_{et1ii})
HazChemPurch_{et7i} (hcp_{et7i})
HazChemPurch_{et5i} (hcp_{et5i})
PurchCash_{et2iii} (pc_{et2iii})
SaleCash_{et2i} (sc_{et2i})
PurchCash_{et5iii} (pc_{et5iii})
HazChemPurch_{et2i} (hcp_{et2i})
HazChemPurch_{et4i} (hcp_{et4i})
HazChemPurch_{Eii} (hcp_{Eii})
SaleCash_{Eii} (sc_{Eii})
SaleCash_{et5ii} (sc_{et5ii})
SaleCash_{et3ii} (sc_{et3ii})
HazChemPurch_{et1ii} (hcp_{et1ii})
SaleCash_{et3i} (sc_{et3i})
SaleCash_{et2ii} (sc_{et2ii})
(etc. from sc_{et1vi} to sc_{et5vi})
(etc. from sc_{et1ix} to sc_{et5ix})
(etc. from sc_{et1v} to sc_{et5v})
(etc. from hcp_{et1iii} to hcp_{et7iii})
(etc. from sc_{et1viii} to sc_{et5viii})
(etc. from sc_{et1iv} to sc_{et5iv})
(etc. from sc_{et1vii} to sc_{et5vii})
(etc. from hcp_{et1iv} to hcp_{et7iv})
(etc. from sc_{et1iii} to sc_{et5iii})
(etc.)

Figure 31. LittleETransaction table transformed to XML

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